# The Application Of Fundamental And Technical Model In The Investment Decision Making: Empirical Study On The Companies Listed In Jakarta Islamic Index

Tatok Endhiarto

**Abstract:** Investors are interested to invest in Indonesia Stock Exchange with the aim of gaining abnormal profit based on Islamic syariah. Some theories and studies have concluded that the prevailed Efficient Market Hypothesis (EMH) revealed that security analysis was just a useless effort as it would not provide significant abnormal return.The objective of this study were (1) to analyze the EMH theory applied for investment transaction in BEI ( weak or semi strong ); (2) to examine the technical analysis in providing significant abnormal return for the investor and (3) to analyze the profitability of fundamental model. Daily and fundamentaly data of the stock in Jakarta Islamic Index (JII) from 2010 to 2014 were analyzed using descriptive and inferring methods. Runs-test and auto correlation test were employed to examine the EMH, while profit announcement was used to examine semi strong EMH. Trend moving indicators such as moving average and Parabolic Stop were used to test the profitability of technical model, while PER and PBV were used to test the profitability of fundamental model.The results showed that the stock market was not efficient or weak form. However, a test toward either AAR or CAR showed that the stock market was efficient in semi strong. The use of buy and sell signal resulted from the technical and fundamental models could generate positive abnormal return but was not statistically significant.

**Index Terms:** Technical and Fundamental Models, PER, PBV, Moving Average Convergence Divergence (MACD) , Moving Average, Parabolic Stop & Reverse

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## 1 INTRODUCTION

Indonesia as the largest Muslim country in the world becomes a huge market opportunity for the investors in the Shariah financial industry. The difficulty in obtaining abnormal returns, the rising risks, and the religious constraints make capital market still not optimal in attracting investors. whether those who are skilled enough in stock investment or those without such sufficiency, always consider certain factors and measure when they make a decision to choose stocks that can provide the desired profits. Sharpe et. al. (1997) stated that there are two models, fundamental models and technical models, that investors commonly use to obtain inputs in investment decision making, with three objectives: first, determining the characteristics of securities; second, identifying mispriced securities, and the third objective is an attempt to beat the market by getting abnormal returns. Studies examining the profitability of fundamental and technical models have been done even though the results are still being debated by academics and the practicalities associated with investment strategy or investment decision-making in the capital market. Practitioners. in line with Abarbanell and Bushee (1997), continued the research by Lev and Thiagarajan (1993) which concluded that the application of fundamental models using company's financial reporting information can produce significant abnormal returns. In this approach, the intrinsic value of an enterprise's stock is based on the fundamental aspect of the company reflected in its financial statements. Sharpe stated that if the company's future ratios can be predicted, then the stock price or future return of the company will also be foreseen.

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Pike (1983), Jones (1996), and Damodaran (2000) stated that in America, the fundamental valuation method commonly used in valuation of stock price is PER (Price Earning Ratio) and PBV (Price To Book Value). ) is the ratio of a company's stock price to the company's earnings per share (EPS) reflecting the yield resulted from each rupiah of stock price of the company's net profit. While Price to Book Ratio (PBV) is the market price of shares of an outstanding company divided by its book value and this is shareholder's equity per share. The sale of shares below the value required by PER and PBV generally inform prospective investors that the stock price is undervalued, so it can be considered as good stock to be included in the portfolio. The opposite relationship will occur if the share price is overvalued, so the stock is not considered to be in the portfolio (Weygandt, 1996). While technical analysis is a model predicting stock prices by observing its pattern of price changes in the past, by expecting the pattern to recur in the future. Friesen et al (2009) stated that technical analysis can be used as an indicator to know the cues when buying or selling should be done by generating a significant return. There are two technical analysis used in this research, those are Trend Following indicator and Momentum indicator. Trend following indicators are widely used by investors such as Moving Average, Moving Average Convergence Divergence (MACD), and Parabolic Stop & Reverse functioning to determine the trend of price movements underway. While Momentum indicator is a type of indicator identifying the turning point of the stock price movement. Momentum Indicator uses stochastic oscillator and relative strength index. In contrast, academics are supporting the Portfolio Theory by Markowitz (1950), Capital Asset Pricing Theory by Sharpe (1962), strengthened by Fama (1992) in Efficient Market Hypothesis (EMH) which are the most dominant theory in the capital market. EMH states that market prices have reflected all available information at once. Thus, future prices or returns are unpredictable and random, so neither individual investor nor institutional investor will be able to obtain abnormal returns using existing trading models or strategies. The theory of EMH

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is built by one of the assumptions that market actors act rationally. In the real world, this assumption is difficult to fulfill. Gumanti and Utami (2002) indicated that market participants are irrational and there are many anomalies or market crashes in the market, showing emotions overwhelming ratios, which in many ways prove opposition to efficient market hypotheses. It probably becomes both evidence and challenge that efficient market hypotheses and fundamental and technical investment model used by many practitioners in capital market should be continued to test its validity. Based on the issues above, some of the main issues that will be examined in this research are: (1) whether EMH theory is occurring in Indonesia Stock Exchange, mainly in the form of weak or semi strong condition, and (2) whether technical analysis can produce significant abnormal return for investor,(3) whether investors can get significant abnormal returns by conducting fundamental analysis..

## 2 LITERATURE REVIEW

Analysis of fundamental and technical models is a systematic analysis of financial and non-financial data to predict the direction of changes in the price of financial securities as a basis for making investment decisions. Studies examining the profitability of fundamental and technical models have been done even though the results are still being debated by academics and the practicalities related to the investment strategy or investment decision-making in the capital market. Most of the academics are in line with the argumentation of Fama (1970), (1991); Fama and French (1988); and Lo and MacKinlay (1988). Fama (1970), on the EMH (Efficient Market Hypothesis), argued that EMH is existed in capital market where the market price of securities has reflected all available information. Thus, future stock price or return is unpredictable and random. Malkiel (1989) stated that in an efficient market, every effort made by investors to profit by utilizing the available information today is a futile attempt to even make statements that forbid technical analysis in the academic world. In addition to being in line with Fama, many academics and practitioners reject EMH. Urrutia (1995) and Bekaert et al. (1997) by using Run and autocorrelation tests concluded that the capital market has not been efficient in weak condition so that efficient market testing in strong and half strong form is no longer needed. The existence of anomalies in the market as well as some crises, proving that the opposition to the EMH probably becomes both evidence and challenge that EMH shold be continued to be tested (Gumanti 2002) as an academic prerequisite for the application of fundamental and technical models in the formulation of strategies in making investment decisions in securities markets. Technical analysis is a model predicting stock prices by observing the pattern of price changes in the past, expecting the pattern to be repeated in the future in hopes of generating returns exceeding the market return. The technical analysis model is used as an indicator of when to buy or sell the securities. There are two kinds of technical analysis used, namely Trend Following indicator and Momentum indicator. Trend following indicators, such as Moving Average, Moving Average Convergence Divergence (MACD) and Parabolic Stop & Reverse are used to determine the trend of price movements underway. While momentum indicators like Williams'%R and relative strength index are the types of indicators used to identify the turning point of stock price movements (Lani, 2003). Moving average is the most widely used technical indicator, because of its

ability to eliminate subjective factors from analyst. Moving average can be interpreted as a change in the average price within a certain time frame. MA 20 for example, is the average price for 20 periods of a particular graph. The calculation is taken from the sum of all data then divided by the number of periods in the observation.

$$\mathrm{MA}_t = \frac{1}{m} \sum_{i=1}^{m} P_{t-i}$$

Where MAt is MA in the t-period, P is the stock price, and m is the period of the MA. The length of m period in SMAt ranges from one to five days, whereas for LMAt depends on the investor whether to see short, medium, or long term price trend. To see the short term trend, m is set between 5 and 20 days, medium term between 20 and 65 days, while for long term price trend is 200 days. This study uses daily and weekly periode with span of time (5-20). The guidelines used to determine buy and sell signals are as follows (Loh, 2007), bt: SMAt> LMAt and SMAt_1 <LMAt_1 and st: SMAt <LMAt and SMAt_1> LMAt_1; where bt and st are buy signals and sell signal signals in t-period. MACD (Moving Average Convergence Divergence) is one of the indicators of technical analysis created by Gerald Appel in the 1960s that is similar to the Moving Average characteristics. MACD is an indicator for excess purchase or selling surplus by looking at the relationship between MA (moving average) in long and short term. The MACD line is the difference of 2 MA above. The second line, the sign line, is the short term MA of the MACD line. Same as the interpretation pattern on the MA, the MACD rules apply if the MACD line intersects the trigger line from below it will change the trend towards Bullish trend. And if the MACD line cuts the triger line from the top, then there will be a trend change towards Bearish trend. Another widely used indicator for predicting the direction of stock price changes is the parabolic SAR (Stop and Reverse). This method was introduced by J. Welles Wilder. This indicator also provides guidance on when the entry point (long buy) that is when the price above SAR and when the exit point (short or selling) when the stock price under SAR. Williams'% R is a momentum indicator such as a stochastic oscillator indicator, which is used to measure overbought and oversold levels. The value of William's% R indicator can be calculated by the following formula.

$$\%R = \frac{Buying\ Power}{Range} = \frac{\max_{t-n}(High) - Close_t}{\max_{t-n}(High) - \max_{t-n}(Low)} \times -100$$

Salim (2003) and Kaufman (2013) stated that Williams% R indicator is used to determine entry and exit points.

A value between -80 to -100 indicates oversold securities or the time to buy, while a value between 0 to 20 indicates overbought securities or time to sell the securities. Brock et al., (1992); Bessembinder and Chan (1995); Hudson et al, (1996); Coutts and Cheung (2000); Chang et al., (2004); in Loh (2007), stated that the application of trading strategy by using technical analysis can generate significant abnormal return. The fundamental model seeks to identify the prospect of the company from the company's fundamental information to be able to predict the stock price or return in the future. The formation of the fundamental model is done by analyzing the effect of fundamental aspects of the company with the stock return. In this approach, the intrinsic value of an enterprise's stock is based on the fundamental aspect of the company reflected in its financial statements. Sharpe (1997) stated that if the company's future ratio can be predicted, then the stock price or future return of the company will also be foreseen. There are several methods of determining intrinsic value of shares based on fundamental analysis, for example Price Earning Ratio (PER) Model and Price Book Value (PBV) Model. Empirical research in finance has shown that variables such as dividends, price to earnings (P / E) ratios, book-to-market (PBV) ratios and past returns have significant prediction strengths on the expected return even after tailored to market risk (Fama and French, 1992). Similar results are reported for some developed markets (Ferson and Harvey, 1997; Fama and French, 1998), as well as for emerging markets (Bekaeert, et al, 1997; Claessens, Dasgupta and Glen, 1998; Patel, 1998; Rouwenhorst, 1999). Damodaran (2000) also stated that the valuation method commonly used in valuation of stock price is PER and PBV model. PER is the ratio between stock price per share and earnings per share (EPS) which reflects the yield rate generated from each rupiah of stock price over the company's net profit, while the PBV is the ratio between stock market price and book value. Sales of shares below the value required by the PER or PBV generally provide information to potential investors that the stock price is undervalued, so the stock is considered to be selected in the portfolio. The opposite relationship will occur if the share price is overvalued, so the stock is not considered to be selected in the portfolio (Weygan, 1996). Abarbanell and Bushee (1997), who continued the research by Lev and Thiagarajan (1993), concluded the application of fundamental analysis by using fundamental information (corporate financial statements) can generate significant abnormal returns. Among capital market practitioners there are those who believe that fundamental analysis and technical analysis are mutually exclusive. Some investors only use technical analysis, other investors are only guided by fundamental analysis, and many investors use both technical analysis and fundamental analysis.

# 3 METHODOLOGY

As per research objectives, data analysis were done in four stages. The first stage is EMH test by utilizing run test and series correlation test to examine whether the capital market is efficient in weak form. While to know whether the Indonesian Stock Exchange is efficient in semi strong condition, the hypothesis used is that whether after the information becomes public property, investors can not obtain an abnormal return based on Capital Asset Pricing Model and Single Index Model. The second stage is the model profitability analysis using two technical indicators indicators namely Moving Average, Moving Average Convergence Divergence (MACD), and parabolic

SAR functioning to find out the direction of price movement trend as well as the stochastic oscillator indicator Williams'%R which is a momentum indicator that measures the overbought and oversold level. Technical indicators analysis is done with the help of HOTS software (Home Online Trading System) provided by eTrading Securities company. Data analysis in the third stage was done by analyzing the fundamental model, namely PBV Model and PER Model. To examine the relationship between the dependent variable with more than one independent variable and predict the value of the variable, regression model was used (Kutner et al 2004). To examine the simultaneous and partial influence of fundamental factors of company to its PER or PBV the following formula was used: $Y_t = \beta_0 + \beta_1 DER,t-1 + \beta_2 ROA,t-1 + \beta_3 ROE, t-1 + \beta_4 EPS, t-1 + \beta_5 EBIT/SALES, t-1 + \beta_6 BETA, t-1 + \beta_7 CR, t-1 + e$ Mispriced securities were identified by using the following criteria: if the PER or PBV of the company's stock is lower than PER or PBV from regression result, it means that company shares are underpriced, whereas if the PER or PBV of company stock is higher than the PER or PBV of regression result, it means that the company's share is overpriced. The last analysis was performing profitability test from technical model and fundamental model. This analysis was done to identify the mispriced company stock and then to observe its performance by using the selected technical model indicator and compare it with the market performance.

# 4 RESULT AND DISCUSSIONS

## 4.1 Results

**The Analysis of Weak Form Test of Efficiency**
The result of Run test performed using daily JII data during 2010 - 2014 for random data (Asymp Sig. (2-tailed)) showed that p = 0,000 which means Ho is rejected statistically using 5% alpha, so it means that the JII data set is not random or it can be concluded that Indonesian capital market during the period 2010 - 2014 has not been efficient in weak form. The efficient capital market test in weak form by using stock price data from 13 shares of companies listed in JII showed that only Unilever share showing p = 0,014 which means Ho is rejected statistically using 5% alpha,  it means that the data series of Unilever stock return is not random. The results of autocorrelation test using SPSS software can be seen in the Table 1.

*Table 1. The Result of Autocorrelation Test*

| | Autocorrelations | | | | |
|---|---|---|---|---|---|
| | Series: JII | | | | |
| Lag | Auto-correlation | Std. Error[a] | Box-Ljung Statistic | | |
| | | | Value | df | Sig.[b] |
| 1 | ,992 | ,028 | 1274,476 | 1 | ,000 |
| 2 | ,985 | ,028 | 2530,283 | 2 | ,000 |
| 3 | ,977 | ,028 | 3768,610 | 3 | ,000 |
| 4 | ,972 | ,028 | 4993,521 | 4 | ,000 |
| 5 | ,967 | ,028 | 6207,570 | 5 | ,000 |
| 6 | ,962 | ,028 | 7410,659 | 6 | ,000 |
| 7 | ,958 | ,028 | 8604,426 | 7 | ,000 |
| 8 | ,954 | ,028 | 9787,556 | 8 | ,000 |
| 9 | ,949 | ,028 | 10961,002 | 9 | ,000 |
| 10 | ,945 | ,028 | 12124,020 | 10 | ,000 |
| 11 | ,940 | ,028 | 13275,473 | 11 | ,000 |
| 12 | ,935 | ,028 | 14416,260 | 12 | ,000 |
| 13 | ,929 | ,028 | 15544,446 | 13 | ,000 |
| 14 | ,924 | ,028 | 16660,800 | 14 | ,000 |

| 15 | ,919 | ,028 | 17765,424 | 15 | ,000 |
| 16 | ,914 | ,028 | 18859,532 | 16 | ,000 |
| a. The underlying process assumed is independence (white noise). | | | | | |
| b. Based on the asymptotic chi-square approximation. | | | | | |

Using Jakarta Composite Index (JCI) and JII data, it can be seen all sig value of auto correlation coefficient showing the rejection of Ho, it means that there is influence between previous data index with the index data afterwards it. It can be concluded that based on index data between the years 2010 - 2014, the capital market has not been efficient in the form of weak.

## The Analysis of Semistrong Form Test of Efficiency

Retrace that the fundamental value is difficult to know, then the method to test the efficiency of the market is to detect the specific news of the company, whether the news can produce abnormal return or not (Solnik, 1996, in Kurniawati and Lestari, 2011). In this research, the specific news in question is the announcement of the company's earnings by looking at the extent of the effect of earnings announcements to fluctuations in stock returns of the companies concerned. In the picture below, we can see the direction of AR (abnormal return) movement by year.

*Figure 1: Graphic of Average Abnormal Return in 2010-2014*
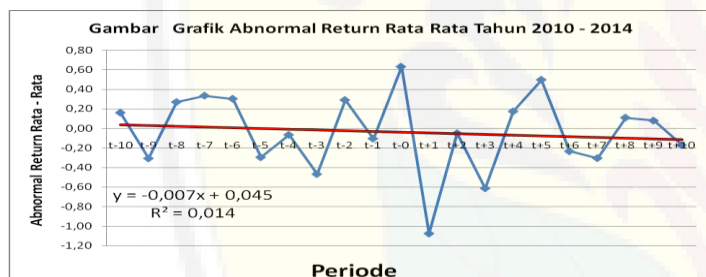


Graphically, we can see the that the impact of corporate earnings announcement on abnormal return is relative stagnant and it tends to decline in the period t-10 to t +10, both for annual data and for data between the years 2010 to 2014. By looking at the visual of the above graph, it can be concluded that there is no significant influence of the announcement of corporate financial statements with fluctuations in abnormal return changes. To determine whether the abnormal return is statistically significant, the hypothesis was tested using t-test (one sample t-test) with $\alpha$ = 5%. Statistically, there was abnormal return on AR t-3, AR t-0 and AR t + 3, while CAR and AR on other observation periods result is not statistically significant. Thus it can be concluded that Ho is accepted or there is no effect of earnings announcement to fluctuation of stock return of the company concerned. The results of this study were in line with Kurniawati and Lestari (2011) who stated that capital markets are efficient in weak form when associated with earnings announcements and not yet efficient when associated with stock split, reverse split, and dividend announcement. The results of this study were inconsistent with previous research conducted by Husnan, Hanafi, and Wibowo (1995), Puji Astuti (1996), Hastuti (1997), Andreas Loko (2000) and Anitawati (2002) who found the reaction to stock prices. In addition, less specific announcement of published financial statements will result in different types of reactions. If the company provides a financial report in good news category, then the possibility of a positive reaction from investors will be greater. Otherwise, if the company gives a report in the bad news category, then the possibility of negative reaction from investors will be greater also. Thus the consequences of non-specific financial report information in the form of good news or bad news in this study can cause different reactions from investors (Masela, 2004).

## Technical Model

The technical analysis used in this research is Trend Following indicator such as Moving Average and Parabolic Stop & Reverse functioning to find out the direction of current price movement trend and Momentum indicator identifying the turning point of stock price movement using stochastic oscillator and relative strength index. Taking into account the fundamental conditions, this study conducted observation of buy signal and sell signal to AALI stock. For objectivity, observations made using Home Online Trading System (HOTS) software provided by eTrading Securities company.

## Profitability Evaluation of Technical Model

The profitability of the technical model were observed using daily JII stock price data during 2015. Technical indicators used are Moving Average, Moving Average Convergence Divergence (MACD), Parabolic Stop & Reverse, and Williams% Momentum Indicators. The observation was done from the practitioner's point of view, where if based on buying and selling rules according to each selected technical indicator, it will be observed and calculated the return result from each indicator of technical model chosen during 2015. Based on the daily data of stock group incorporated in JII, performance of each technical indicator are showed in the table 2. As shown on the table, the profitability of technical indicators was similar to the previous analysis using daily data, where the SAR indicator showed negative performance with a negative mean return of -4.01%. Williams'% indicator showed the best performance of 14.71% followed by MA of 5.21% and MACD indicator resulted in a positive return of 3.72%. The results of this observation were in accordance with the research of Brock, Lakanishok, and LeBaron (1992), Pesaran and Timmerman (1994) that investors can use historical stock price data to generate positive profit using the buy and hold strategy.

## Fundamental model analysis: regression of PER and PBV Model

The result of PER and PBV model for JII stock using data period 2010-2014 are shown in table 3. As shown in the PER model, variables of DER, ROA, ROE, EPS and CR have significant effect, while the variable of Beta and EBIT/SALES have no significant effect. As for the PBV model, only variables of ROE and EPS having significant effect, while DER, ROA, EBIT/SALES, BETA and CR have no significant effect.

*Table 2 . The Performance of Technical Weekly Indicator in 2015*

| No | Stock | MA | MACD | SAR | WILLIAMS |
|----|-------|-----|------|-----|----------|
| 1 | AALI | 9,30% | -16,61% | -57,18% | 2,65% |
| 2 | ADRO | -30,20% | 1,73% | -26,32% | 2,98% |
| 3 | ASII | 4,53% | 17,47% | -13,30% | 33,64% |

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| 4 | INTP | -20,52% | 3,04% | -16,26% | 21,54% |
|---|---|---|---|---|---|
| 5 | ITMG | -18,75% | -71,15% | 45,63% | -52,28% |
| 6 | KLBF | 40,99% | -17,05% | 1,63% | -12,93% |
| 7 | LPKR | -0,60% | 3,36% | -41,65% | 108,93% |
| 8 | LSIP | 24,56% | 20,87% | -5,03% | 16,80% |
| 9 | PTBA | -7,19% | 133,86% | 39,25% | -7,56% |
| 10 | SMGR | -15,52% | -41,81% | -8,13% | -0,88% |
| 11 | TLKM | 32,47% | 56,31% | 42,86% | 21,74% |
| 12 | UNTR | 7,25% | -49,70% | -47,84% | 29,05% |
| 13 | UNVR | 41,38% | 8,00% | 34,24% | 27,50% |
| **Total** | | 67,70% | 48,32% | -52,12% | 191,19% |
| **Mean** | | 5,21% | 3,72% | -4,01% | 14,71% |
| **Stan Dev** | | 23,86% | 51,30% | 35,29% | 36,49% |
| **CV** | | 458,24% | 1380,38% | -880,29% | 248,12% |

| Return Sell PER Mean | 0.21% | Return Sell PBV Mean | -0.13% |
|---|---|---|---|
| Standard Deviation | 15.40% | Standard Deviation | 16.27% |
| Coef. Variation | 1.38% | Coef. Variation | -0.82% |
| Frequency | 71 | Frequency | 106 |

*Table 3. Result of Regression Analysis*

| Independent Variable | Model PER | | Model PBV | |
|---|---|---|---|---|
| | Coefisien | Sig | Coefisien | Sig |
| (Constant) | ,004 | ,996 | 24,779 | ,000 |
| DER | -2,154 | ,000 | -4,341 | ,118 |
| ROA | -,505 | ,000 | -,513 | ,092 |
| ROE | ,577 | ,000 | ,375 | ,004 |
| EPS | -,001 | ,000 | -,003 | ,020 |
| EBIT/SALES | -,013 | ,141 | -,077 | ,109 |
| BETA | -,016 | ,639 | -,190 | ,295 |
| CR | ,289 | ,008 | -,106 | ,857 |
| R Square | ,935 | | 0,129 | |
| Sig | 0,00 | | 0,00 | |

The identification from the results of mispriced securities return based on PER and PBV models using quarterly fundamental company for period 2010-2014 is shown in table 4 below. Buy recomendations generated from the PER and PBV models resulted in positive mean return of 2.32% for the PER model and 3.04% for the PBV model respectively. Based on the analysis on the tables, according to the historical real returns, PBV model performance outperformed PER model where the Coefficient Variation (CV) PBV Model was 0.14 while the CV of PBV model was 0.19.

*Table 4. The Comparison between PER model and PBV model*

| PER Model | | PBV Model | |
|---|---|---|---|
| Return Buy PER Mean | 2.32% | Return Buy PBV Mean | 3.04% |
| Standard Deviation | 16.49% | Standard Deviation | 16.07% |
| Coef. Variation | 14.07% | Coef. Variation | 18.90% |
| Frequency | 189 | Frequency | 154 |

The fundamental model in this empirical study was done to find out the profitability of the PER and PBV models in assisting favorable investment decision making. The results of the above analysis showed that two models were able to generate buy signals that generate larger return than the sell signal. This was consistent with previous empirical studies, that both models have demonstrated significant predictive power against expected return even after adjusted with market risk (Fama and French, 1992). Similar results are reported for some developed markets (Ferson and Harvey, 1997, Fama and French, 1998), as well as for emerging markets (Bekaeert, et al 1997, Claessens, Dasgupta and Glen, 1998; Patel, 1998; Rouwenhorst, 1999 ). Trading research based on fundamental information by analyzing the company's financial statements has also been done by Aby et al (2001), Nissim and Penman (2001) by using several financial ratios and testing its ability in predicting stock returns. The Conclusion was in line with this research, that there is a statistically significant relationship between stock prices with PER and PBV.

**4.2 Discussion**
Fama (1970) divided the market efficiency testing into three categories associated with its market efficiency forms: (1) weak form testing to test how strong the past information in predicting future returns; (2) semi-strong form testing to test how fast the price of securities reflecting the published information, and (3) strong form testing to answer the question of whether investors have private information that is not reflected in the price of securities (Jogianto 2000: 379). In his book entitled A Random Walk Down Wall Street which was first written in 1973, Burton Malkiel explained that according to Random Walk theory, stock prices move randomly. The implications of this theory indicate that stock prices are not determined by historical stock prices previously and in this case technical analysis and fundamental analysis can not be used to forecast stock prices. Husnan (2003) stated that if the stock price changes follow the random walk pattern, then the price change in the past can not be used to predict future price changes. Efficient market testing in weak form was done using run test and auto correlation test. Statistically, the result could be concluded that Indonesia capital market during period 2010-2014 has not efficient in weak form. With an inefficient capital market in weak form, it is theoretically possible for investors to get abnormal returns. This result was consistent with the evaluation of the profitability of technical model indicator yielding positive return. Efficient market testing in semi-strong form was performed by detecting specific news from the company, whether the news can produce abnormal return or not (Solnik, 1996, in Kurniawati and Lestari, 2011). In this study, the specific news was the announcement of the company's earnings by looking at the extent to which the effect of earnings announcements on the fluctuation of stock returns of the companies concerned. Test results concluded that Ho was accepted, it means that there is no effect of earnings announcements on the fluctuation of stock returns of the company concerned. It can also be concluded that the capital market is efficient in the form of semi-strong. The result of this study was in line with Kurniawati and Lestari (2011) who stated

that the capital market is efficient in semi-strong form if it is associated with earnings announcement and not efficient when it is associated with stock split, reverse split, dividend announcement. The result of this study was inconsistent with previous research conducted by Husnan, Hanafi, and Wibowo (1995), Puji Astuti (1996), Hastuti (1997), Andreas Loko (2000) and Anitawati (2002) which found that fundamental information can give reaction to stock price. Based on the data analysis of profitability recommendation of PER model shows stock Over value resulted in return - 25%, while for Under Value value yield return equal to - 317%. This result is not as expected, considering that underlying stocks outperform over-valued stocks. As for the PBV model, the Over Value stock recommendation yielded a return - 233%, while for the underlying stock yielded a return of - 38%. This result is as expected, where under stocks should outperform over-valued stocks even if returns are negative. The performance of this fundamental model is in line with efficient market test results in weak form, where in an efficient market situation investors face random situations or can not be sure when the investments made generate positive returns. Profitability of technical and fundamental models showed positive results. From the analysis, the profitability of technical indicators when combined with the fundamental model showed positive return, although it was not statistically significant. The results of this observation were in accordance with the research byBrock, Lakanishok and LeBaron (1992), Pesaran and Timmerman (1994) which found that investors can use historical stock price data to generate positive profit using the buy and hold strategy. Statistical result also showed that marketing mix has positive and significant effect on customer value. The highest score by respondents among elements of marketing mix is found on product. Product sold in coastal tourism area is dominated with processed-fresh seafood. The location of store which is exactly beside the beach made the seafood always fresh. The condition of seafood is so much different with the store in the city, that is why people give best assessment to the product compared to the other marketing mix elements. The taste of product which is cannot be found in other places encourage consumers to give positive assessment. This finding is in line with findings from Jalil (2015) and Chen et al. (2015) who said that elements in marketing mix has positive and significant effect on customer value. Service quality affects competitive advantage positively and significantly. When the customer assess the service served to them positively based on its tangibility, reliability, responsiveness, assurance, and empathy where the customers have not experienced before, they perceived that the product is unique and could not be imitated by its competitors. This finding is in accordance with the study from Wijetunge (2016) and Warraich (2013) who found that service quality could be a tool to achieve sustainable competitive advantage. Statistical result also showed that marketing mix has positive and significant impact on competitive advantage. Marketing mix covers elements of product, promotion, place, price, physical evidence, process, and people. Fresh seafood as the main product by the coastal culinary store still cannot be imitated by the competitors in the city. The store location which is exactly beside the shoreline becomes the main attraction and the reason why competitors could not emulate it. But the lowest assessment by respondents among element of marketing mix is the price and physical evidence. It is because most of the stores do not attach the price in the menu so the customers

could not estimate the price except by asking to the merchant. The store condition which is very simple and far from aesthetic look made the customers give the lowest assessment to physical evidence element than other marketing mix elements. Overall, this finding is in line with Chumaidiyah (2014) who found that marketing mix has positive and significant impact on competitive advantage. This study also found that customer value affects competitive advantage positively and significantly. The mediating role of customer value on the effect of service quality and marketing mix on competitive advantage is significant. This is supporting the study from Li (2009) who argued that customer value strategy could be one key to reach competitive advantage since the thinking of 'customer-oriented' becoming a trend and customer value has been regarded as a new source of competitive advantage in a firm.

## 5 CONCLUSION

This study provides an understanding about the impact of This study examined the profitability of technical and fundamental model in generating return through buy and sell signals generated by both models. From the results of this study, it was concluded that:

1. Based on the result of Run test and Autocorrelation test on JII and data of JII stock price during the period 2010 -2014, there was no enough proof to accept research hypothesis indicating efficient capital market in weak form, which means that the capital market is not efficient in weak form, reflecting that investors could get abnormal return in the capital market.

2. By utilizing the earnings announcement information of companies incorporated in JII, based on One Sample test on AAR and CAR, it can be concluded that capital market is efficient in the semi-strong form, which means that earnings announcement is responded quickly by investor, so it is not possible for individual investors to achieve abnormal return using earnings announcement information.

3. The application of technical model to determine buy and sell signal utilizing Trend Follow indicator like Moving Average and Parabolic Stop & Reverse and Momentum indicator has not enabled investor to generate extra return (ARR = 1.43%) significantly at JII and JII stock period 2010 - 2014. While CAR generated during the observation period for shares of UNVR is 69.89%.

4. The application of fundamental model through PER and PBV model to identify buy and sell signals indicated that buy signals generated by the model can obtain larger return than sell signal.

5. The application of fundamental and technical models combination could produce positive return even if it was not consistent statistically.

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